

Service Manual

Cassette Deck

Dolby B • C NR-Equipped
Stereo Cassette Deck

RS-B14



Color

(K)...Black Type
(S)...Silver Type



Color	Area
(S)	[P].....U.S.A.
(S)	[C].....Canada.

RS-636 MECHANISM SERIES

Specifications

Deck system: Stereo cassette deck
Track system: 4-track, 2-channel
Heads:
 REC/PLAY; MX head
 Erasing; Double-gap ferrite head
Motor: 1 motor system
Recording system: AC bias
 Bias frequency: 80 kHz
Erasing system: AC bias
Tape speed: 4.8 cm/sec.
Frequency response:
 Metal; 20 Hz~17 kHz
 40 Hz~16 kHz ± 3 dB
 CrO₂; 20 Hz~17 kHz
 40 Hz~15 kHz ± 3 dB
 Normal; 20 Hz~16 kHz
 40 Hz~14 kHz ± 3 dB

S/N:

(Signal level=max recording level, CrO₂ type tape)

Dolby C NR in; 75 dB (CCIR)
Dolby B NR in; 67 dB (CCIR)
NR out; 57 dB (A weighted)

Wow and flutter: 0.07% (WRMS)
Fast Forward and Rewind Time: Approx. 110 seconds with C-60 cassette tape
Input sensitivity and impedance:
 MIC; 0.25 mV/400 Ω ~10 k Ω
 LINE; 70 mV/47 k Ω
Output voltage and impedance:
 LINE; 400 mV/1.8 k Ω
 HEADPHONES; 80 mV/8 Ω
Power consumption: 11 W
Power supply: AC 50 Hz/60 Hz, 120 V
Dimensions (W×H×D): 430×108×220 mm
 (16²⁹/₃₂"×4⁹/₃₂"×9²¹/₃₂"")
Weight 3.1 kg (6 lbs. 13 oz.)

Design and specifications are subject to change without notice.

*'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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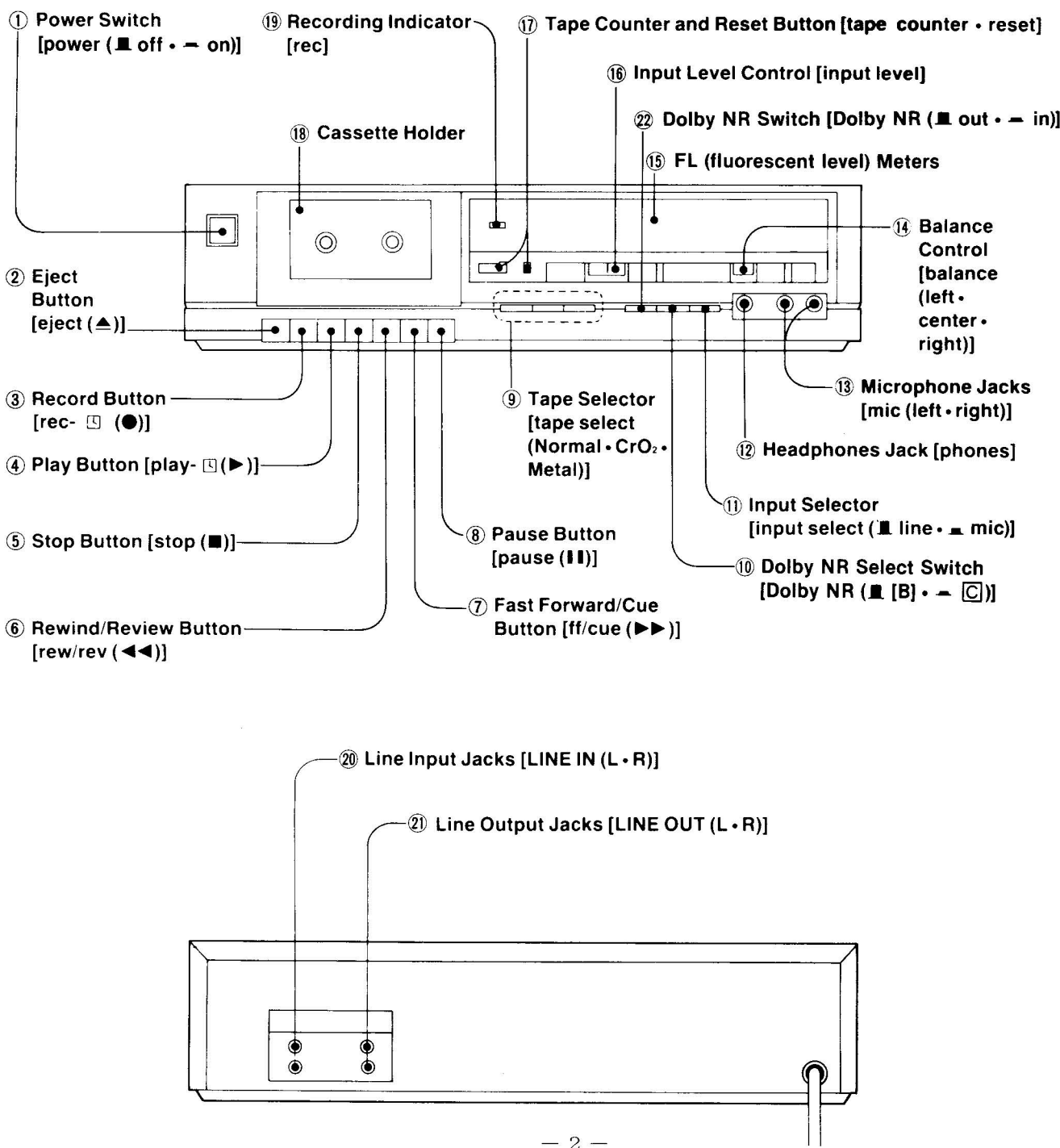
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■ LOCATION OF CONTROLS AND COMPONENTS



■ SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

■ INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3\text{M}\Omega$ and $5.2\text{M}\Omega$ to all exposed parts*. (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)

*Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.

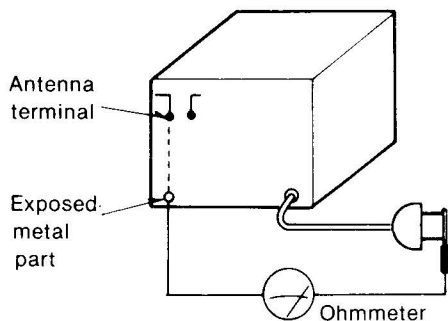


Fig. 1

Resistance = $3\text{M}\Omega$ — $5.2\text{M}\Omega$

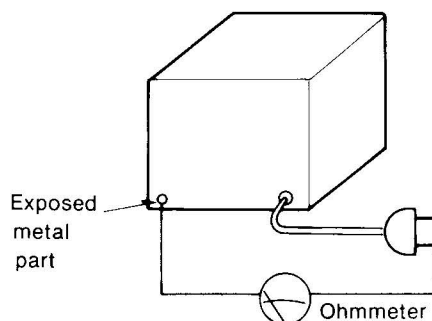
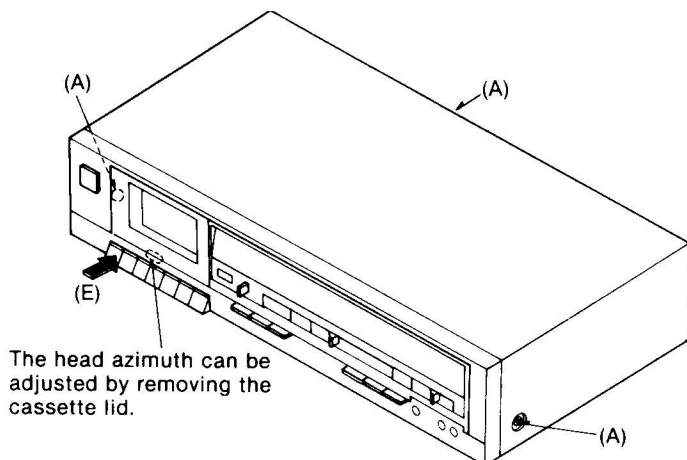


Fig. 2

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ DISASSEMBLY INSTRUCTIONS



The head azimuth can be adjusted by removing the cassette lid.

Fig. 1

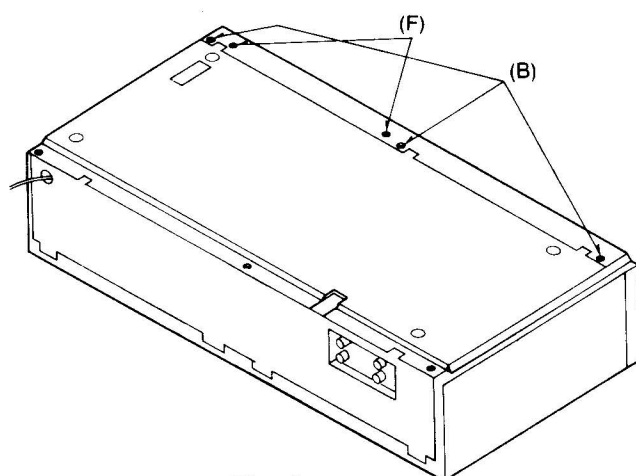


Fig. 2

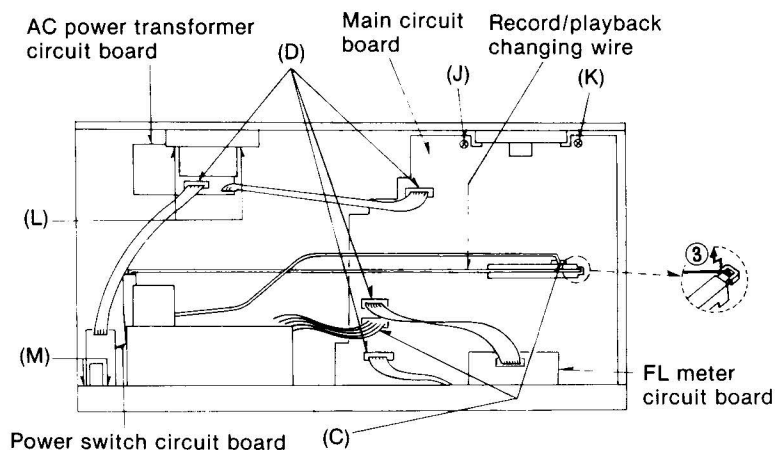


Fig. 3

(D) How to remove flat cable

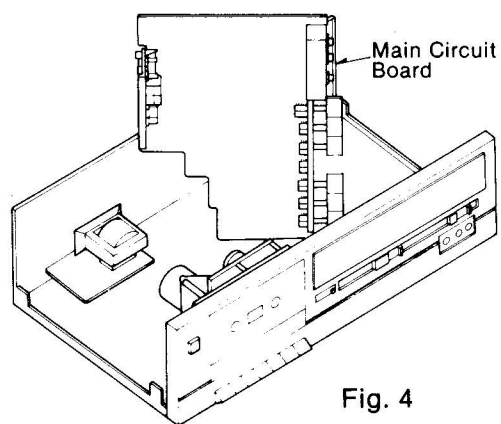
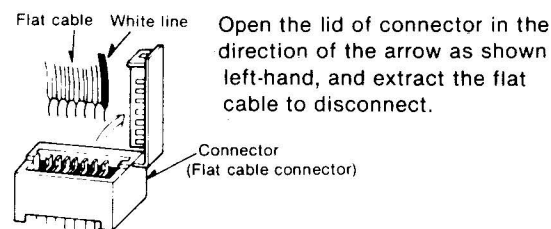


Fig. 4

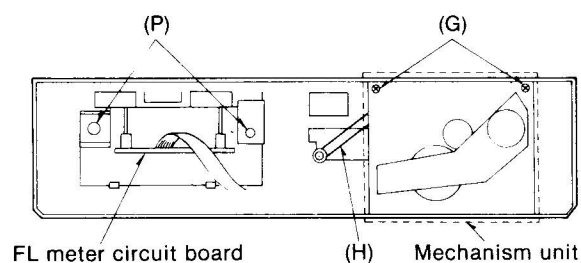


Fig. 5

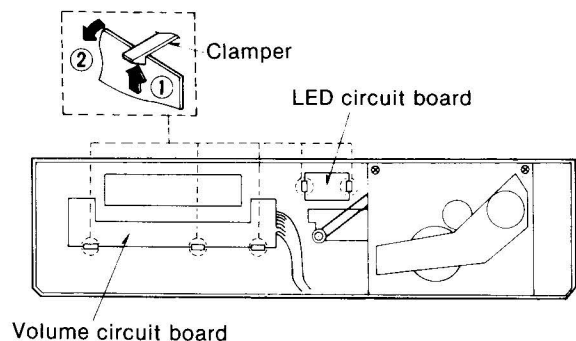


Fig. 6

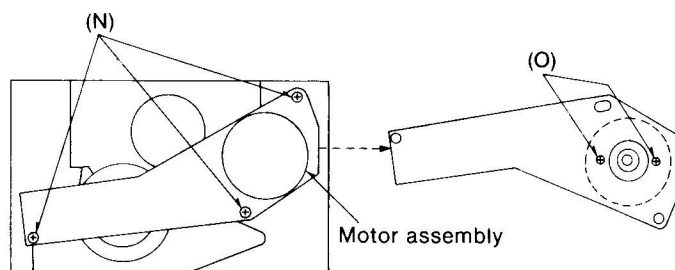


Fig. 7

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
1	1	Case cover	• 3 screws(A)	1
2	1 → 2	LED circuit board	• As shown in fig. 6, raise the clampers in the direction of arrow ① and remove the LED circuit board in the direction of arrow ② .	6
3	1 → 2 → 3	Front panel assembly and mechanism unit	• 3 screws(B) • Pull out the connectors A B(C) • How to remove flat cable C D F(D)	2 3 3

Ref. No.	Procedure	To remove —.	Remove —.	Shown in fig. —.
4	1 → 4	Mechanism unit	<ul style="list-style-type: none"> • Push the eject button(E) • 2 screws(F) • 2 screws(G) • Remove the counter belt.....(H) • Pull out the connectors A B(C) • As shown in fig. 3, remove the record/ playback changing wire in the direction of arrow ③. 	1 2 5 5 3 3
5	1 → 2 → 5	Main circuit board*	<ul style="list-style-type: none"> • 1 screw(J) • 1 screw(K) • As shown in fig. 3, remove the record/ playback changing wire in the direction of arrow ③. • When measuring and adjusting, set the main P.C.B. as shown in Fig. 4. Then, connect the ground of main P.C.B. and the bottom case with a wire. 	3 3 3 4
6	1 → 6	FL meter circuit board	<ul style="list-style-type: none"> • How to remove flat cable D(D) • 2 screws(P) 	3 5
7	1 → 6 → 7	Volume circuit board	<ul style="list-style-type: none"> • How to remove flat cable C(D) • As shown in fig. 6, raise the clampers in the direction of arrow ① and remove the volume circuit board in the direction of arrow ②. 	3 6
8	1 → 8	Power supply circuit board	<ul style="list-style-type: none"> • 2 screws(L) • How to remove flat cable E F(D) 	3 3
9	1 → 9	Power switch circuit board	<ul style="list-style-type: none"> • 2 screws(M) • How to remove flat cable F(D) 	3 3
10	1 → 4 → 10	Motor assembly	<ul style="list-style-type: none"> • 3 screws(N) • 2 screws(O) 	7 7

* When adjusting in record mode, fix the rec/play switch (S1) on the main P.C.B. at "rec" by use of a clip or the like.

■ MEASUREMENT AND ADJUSTMENT METHODS

NOTES:

- Before making the adjustment and measurement, be sure to read "Ref. No. 4: to remove main circuit board" of "DISASSEMBLY INSTRUCTION".

Tape speed adjustment VR

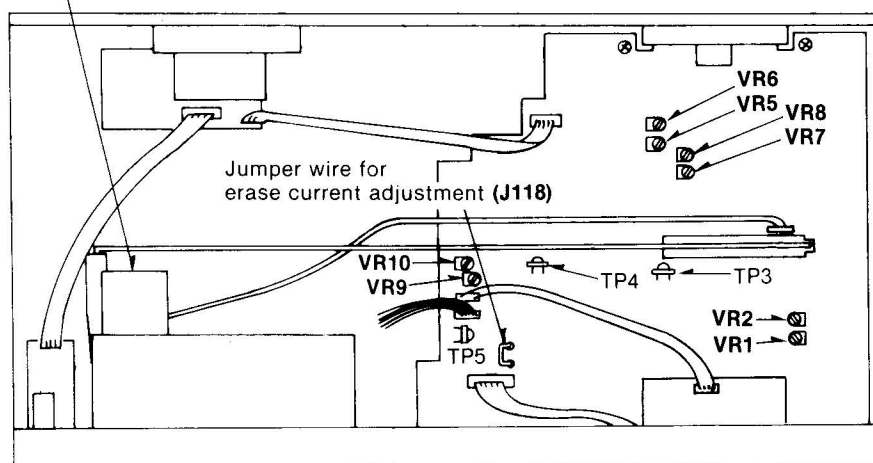


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean
- Make sure capstan and pinch roller are clean
- Judgeable room temperature $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
- NR switch: OUT
- Tape selector: Normal
- Input selector: Line in
- Input level controls: Maximum
- Balance control: Center

A Head azimuth adjustment

Condition:

- Playback mode
- Normal tape mode

Equipment:

- VTVM
- Oscilloscope
- Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

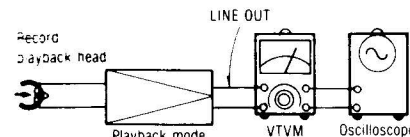


Fig. 2

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.
3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

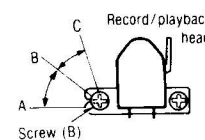


Fig. 3

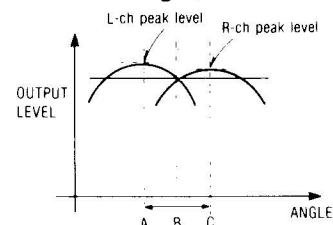


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two VTVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

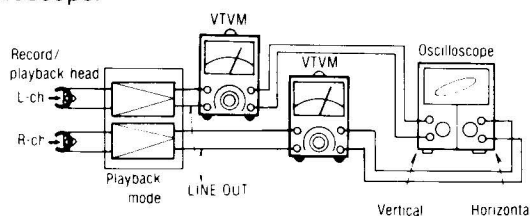


Fig. 5

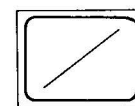


Fig. 6

B Tape speed

Condition:

- Playback mode

Equipment:

- Digital frequency counter
- Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000Hz, determine value by following formula:

$$\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100(\%) \quad \text{where, } f = \text{measured value}$$

5. Take measurement at middle section of tape.

Standard value: $\pm 1.5\%$

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR shown in fig. 1.

Note: Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100(\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$$

Standard value: Less than 1%

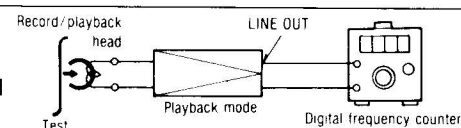


Fig. 7

㊦ Playback frequency response

Condition:
 • Playback mode
 • Normal tape mode

Equipment:
 • VTVM
 • Oscilloscope
 • Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM):
3. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart. (Shown in fig. 8).

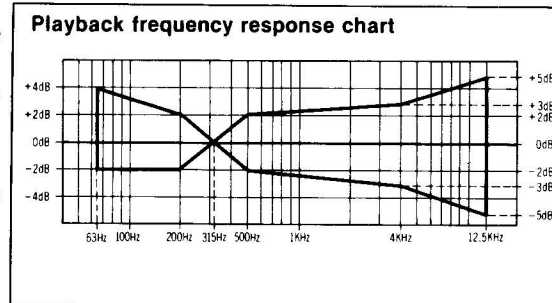


Fig. 8

㊦ Playback gain

Condition:
 • Playback mode
 • Normal tape mode

Equipment:
 • VTVM
 • Oscilloscope
 • Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using VTVM, measure the output level at LINE OUT.
3. Make measurements for both channels.

Standard value: 0.4V±1dB

Adjustment

1. If the measured value is not within the standard, adjust VR1 (L-CH) or VR2 (R-CH) (See fig. 1).
2. After adjustment, check "Playback frequency response" again.

㊦ Erase current

Condition:
 • Record mode
 • Metal tape mode

Equipment:
 • VTVM
 • Oscilloscope

1. Test equipment connection is shown in fig. 9.
2. Place UNIT into metal tape mode.
3. Press the record and pause buttons.
4. Read voltage on VTVM and calculate erase current by following formula:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R84}}{1 (\Omega)}$$

Standard value: 155±15mA (Metal)

5. If the measured value is not within the standard value adjust it by following the adjustment instructions.

Adjustment

- If the erase current is more than 170mA, cut the jumper wire (See fig. 1).

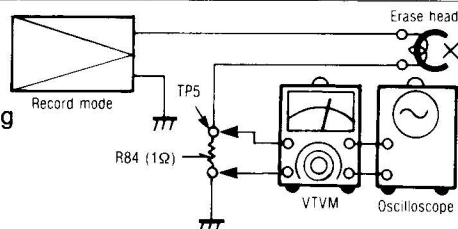


Fig. 9

Overall frequency response

Condition:

- Record/playback mode
- Normal tape mode
- CrO₂ tape mode
- Metal tape mode
- Input level controls...MAX

Equipment:

- VTVM
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)

• Test tape

- (reference blank tape)
- ...QZZCRA for Normal
- ...QZZCRX for CrO₂
- ...QZZCRZ for Metal

Note:

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 11.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is -20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz and 10kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 5, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 10).

(If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)
If the curve is not within the charted specifications, adjust as follows;

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 10) as shown in fig. 12.

- 1) Increase bias current by turning VR7 (L-CH) and VR8 (R-CH).
(See fig. 1 on page 6.)
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

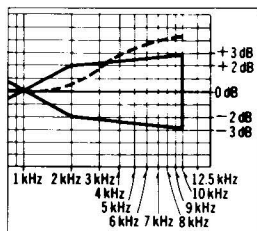


Fig. 12

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 10) as shown in fig. 13.

- 1) Reduce bias current by turning VR7 (L-CH) and VR8 (R-CH).
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

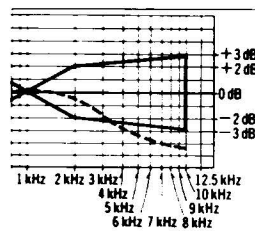


Fig. 13

7. Place UNIT into CrO₂ tape mode.
8. Change test tape to CrO₂ reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO₂ tapes (fig. 14).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
10. Confirm that bias voltage are approximately as follows when the UNIT is set at different tape mode.

- Measure the voltage across the head using a VTVM.

around 6.2V (Normal position)
Reference value: around 8.9V (CrO₂ position)
around 15.7V (Metal position)

Overall frequency response chart (Normal)

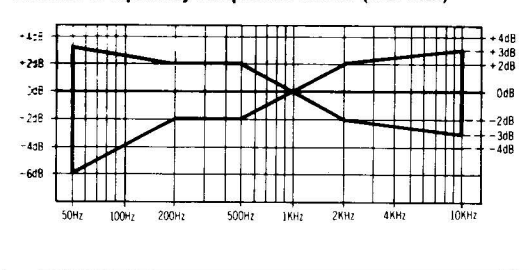


Fig. 10

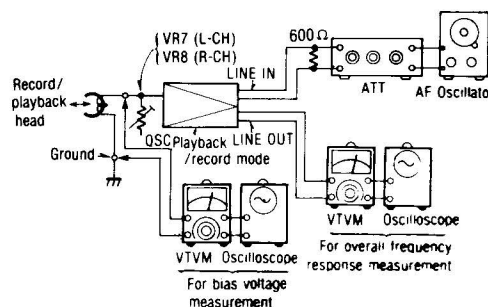


Fig. 11

Overall frequency response chart (CrO₂, Metal)

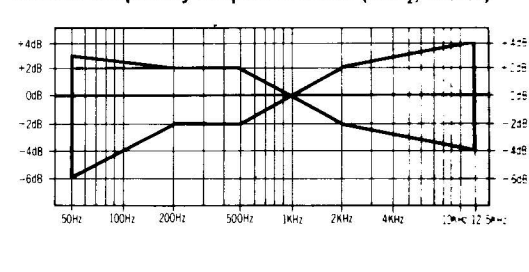


Fig. 14

⑤ Overall gain

Condition:

- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Standard input level;

MIC $-72 \pm \frac{5}{3}$ dB

LINE IN $-24 \pm \frac{4}{2}$ dB

Equipment:

- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Test tape

(reference blank tape)

...QZZCRA for Normal

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (-24 dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes $0.4V \pm 1$ dB.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes $0.4V \pm 1$ dB.
7. If measured value is not $0.4V \pm 1$ dB, adjust it by using VR5 (L-CH) or VR6 (R-CH).
8. Repeat from step (2).

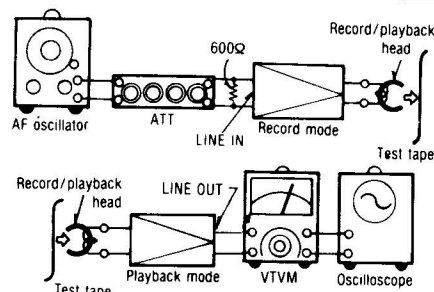


Fig. 15

⑥ Fluorescent meter

Condition:

- Record mode
- Input level controls...MAX

Equipment:

- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)

1. Make connections as shown (See fig. 16).
2. In the recording pause mode, apply 1kHz (-24 dB) to LINE IN.
3. Adjust ATT so that output level LNE OUT is $0.4V \pm 1$ dB.
4. At this time, check that 0dB indicator is lighted halfway (intermediate brightness between full brightness and light-out: See fig. 17).
5. If the indicator is not lighted halfway as described in step 4, adjust VR9 (L-CH), VR10 (R-CH).
6. Repeat adjustments and checks at steps 3, 4 and 5 two or three times.

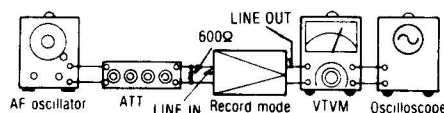


Fig. 16

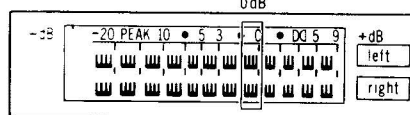


Fig. 17

⑦ Dolby NR circuit

Condition:

- Record mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch...B/C
- Input level controls...MAX

Equipment:

- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Balance control...Center

Record side

- Check of the Dolby-B type encoder characteristics
 1. Make connections as shown in fig. 18.
 2. Set the unit to the record mode. (NR select switch is OUT.)
 3. Apply a 1kHz signal to LINE IN.
 4. Adjust the ATT so that the output level at TP3 (L-CH) and TP4 (R-CH) is 12.3mV .
 5. The output level at pin 21 should be 0dB.
 6. Set the NR select switch to B, and make sure that the output signal level at pin 21 of IC5 (L-CH) and IC6 (R-CH) is $+6\text{dB} \pm 2.5\text{dB}$.
 7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 21 should be 0dB.
 8. Set the NR select switch to B and make sure that the output signal level at pin 21 of IC5 (L-CH) and IC6 (R-CH) is $+8\text{dB} \pm 2.5\text{dB}$.
- Check of the Dolby-C type encoder characteristics
 9. Repeat steps 1-5 above.
 10. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC5 (L-CH) and IC6 (R-CH) is $+11.5\text{dB} \pm 2.5\text{dB}$.
 11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 21 should be 0dB.
 12. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC5 (L-CH) and IC6 (R-CH) is $+8.5\text{dB} \pm 2.5\text{dB}$.

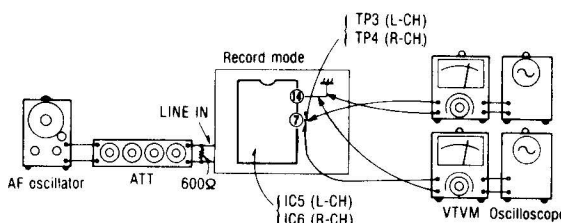
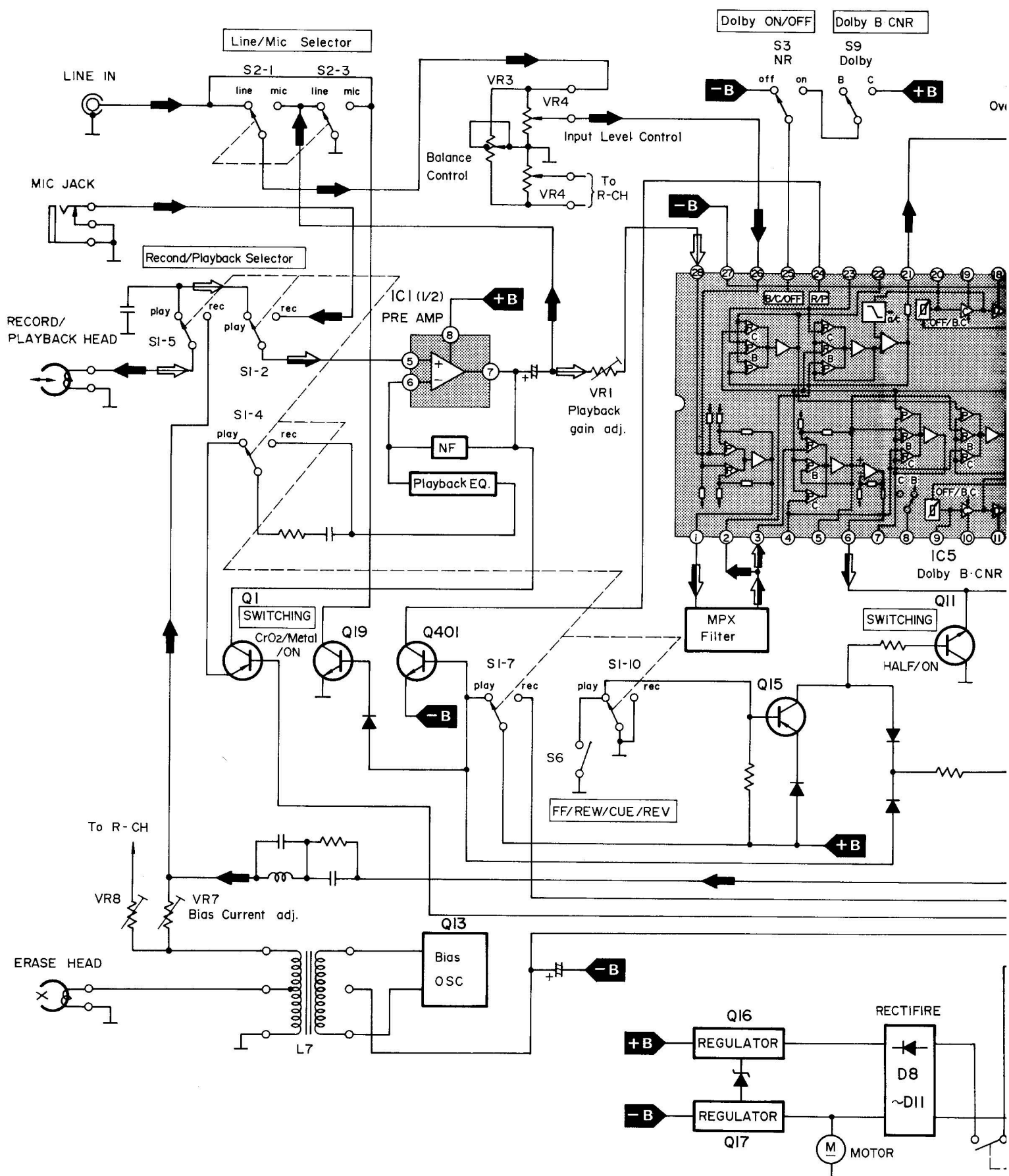
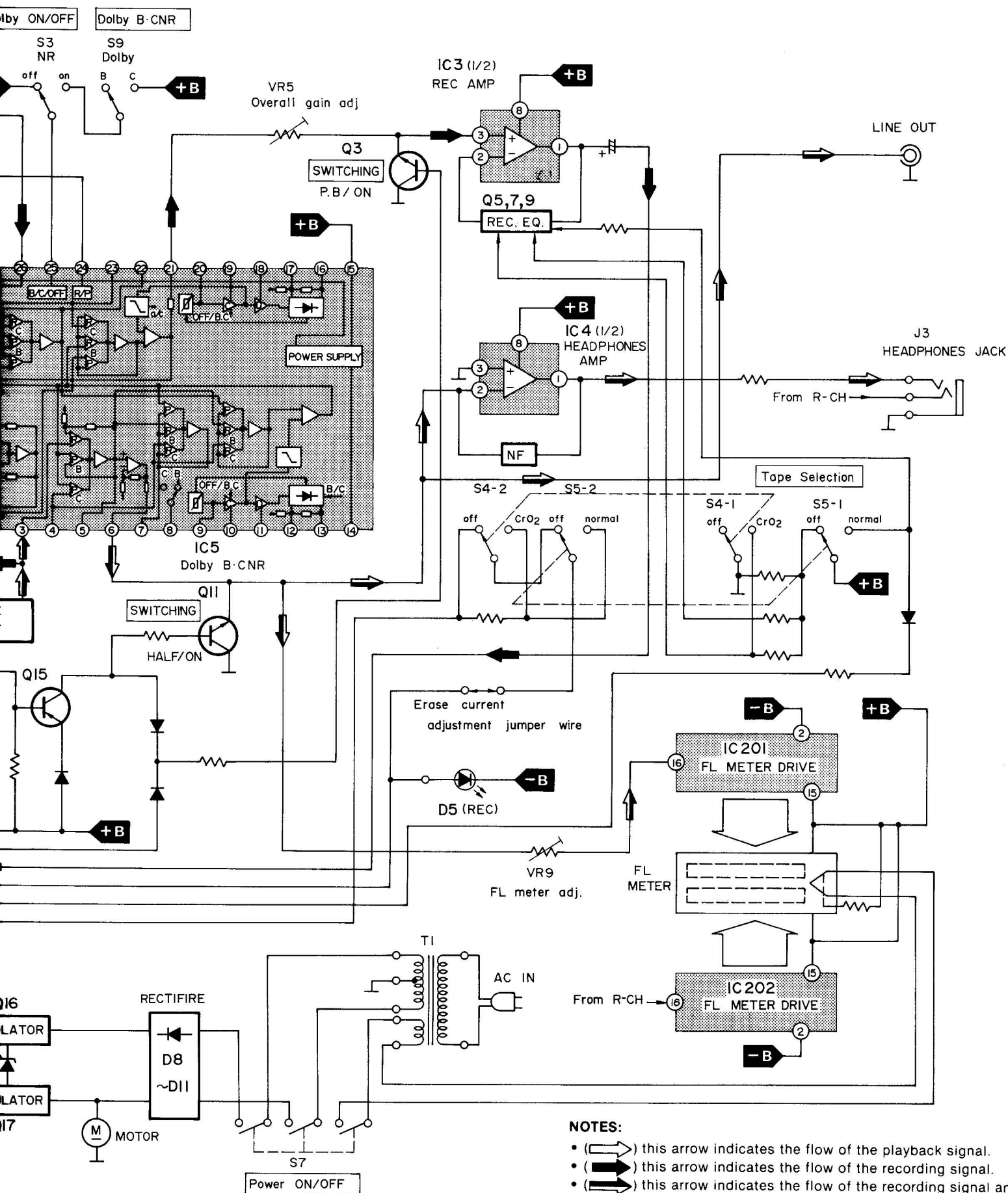


Fig. 18

■ BLOCK DIAGRAM (L-CH ONLY)



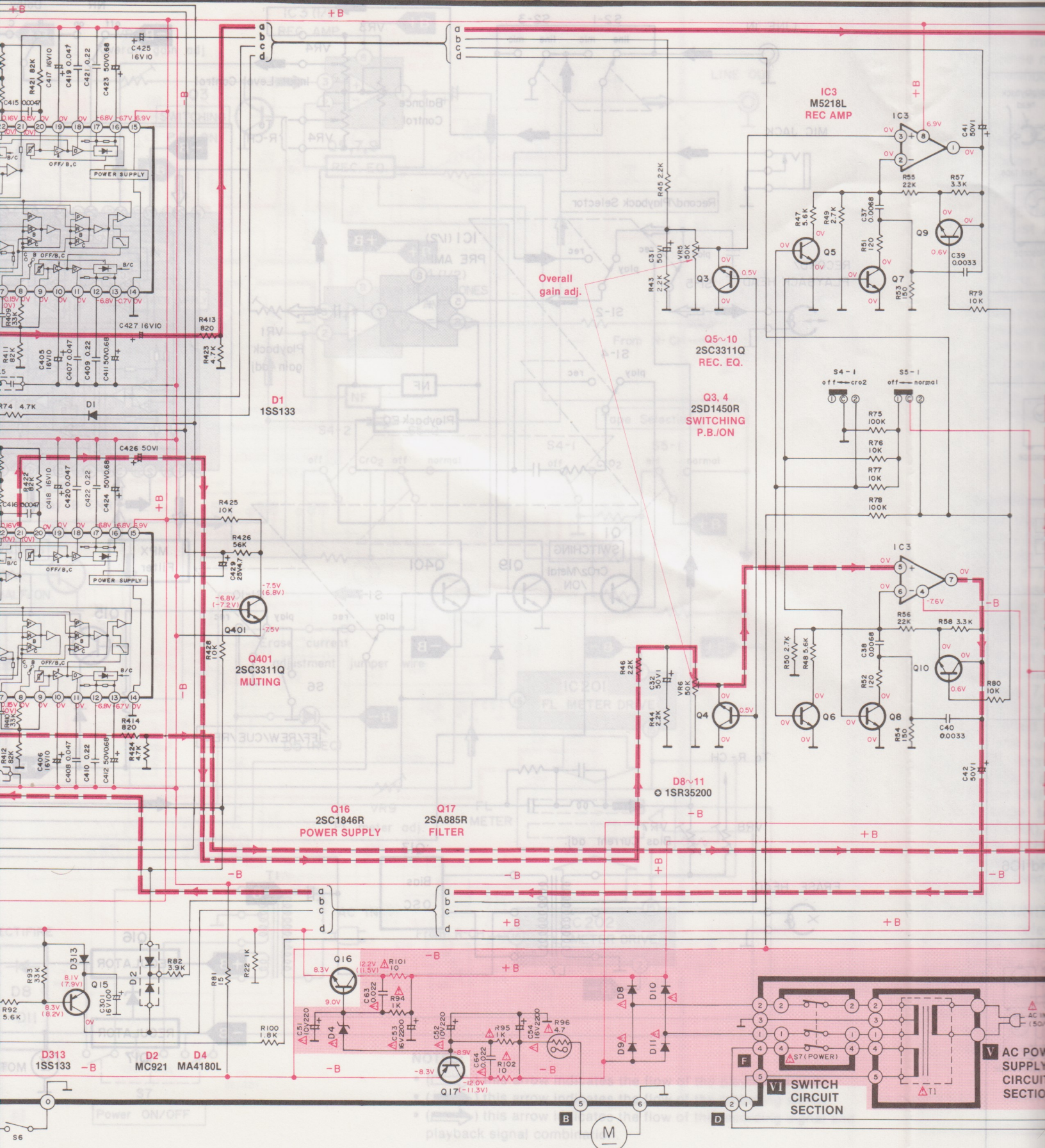


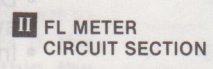
NOTES:

- (→) this arrow indicates the flow of the playback signal.
- (→) this arrow indicates the flow of the recording signal.
- (→) this arrow indicates the flow of the recording signal and playback signal combination.

I MAIN CIRCUIT SECTION







1. S1-1~S1-9 : Record/playback switch (shown in **playback** position).
2. S2-1~S2-4 : Input select switch (shown in **line** in position).
3. S3 : Dolby NR switch (shown in **OFF** position).
4. S4-1, S4-2 : CrO₂ tape select switch (shown in **OFF** position).
5. S5-1, S5-2 : Normal tape select switch (shown in **OFF** position).
6. S6 : FF/CUE/REW/REV switch (shown in **OFF** position).
7. S7 : Power ON/OFF switch (shown in **OFF** position).
8. S8 : Dolby B • C NR selector (shown in **Dolby B** position).
9. VR1, 2 : Playback gain adjustment VR.
10. VR3 : Balance control.
11. VR4 : Input level control.
12. VR5, 6 : Overall gain adjustment VR.
13. VR7, 8 : Bias current adjustment VR.
14. VR9, 10 : FL meter adjustment VR.
15. L1, 2 : Bias trap coil.
16. L3, 4 : MPX filter.
17. L7 : Bias oscillation coil.

18. Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
1K = 1,000(Ω), 1M = 1,000 k(Ω).

19. Capacity are in micro-farads (μF) unless specified otherwise.

20. All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.

() Voltage values at record mode.

CrO₂ Voltage values at CrO₂ tape mode.

Metal Voltage values at Metal tape mode.


Stop Voltage values at Stop mode.

NR IN Voltage value at which the noise reduction switch is turned on.

For measurement use-VTVM.

21. (**+ B**) indicates B + (bias).

(-B) indicates B - (bias).

() indicates the flow of the playback signal. (NR out).

(■ ■ ■) indicates the flow of the recording signal. (NR out)

22. Important safety notice (A)

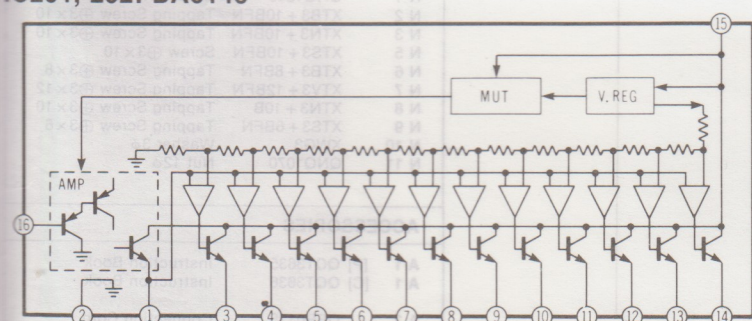
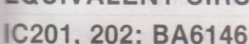
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.

When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ★ mark, the production part No. are different from the replacement part No.

Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.

EQUIVALENT CIRCUIT



SPECIFICATIONS

- * Input level control...MAX
- * Balance control.....Center

Playback S/N ratio * Test tape...QZZCFM	Greater than 45dB
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO ₂ ...QZZCRZ for Metal	Normal..... Less than 3.5% CrO ₂ , Metal..... Less than 4%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

■ ELECTRICAL PARTS LIST

REPLACEMENT PARTS LIST

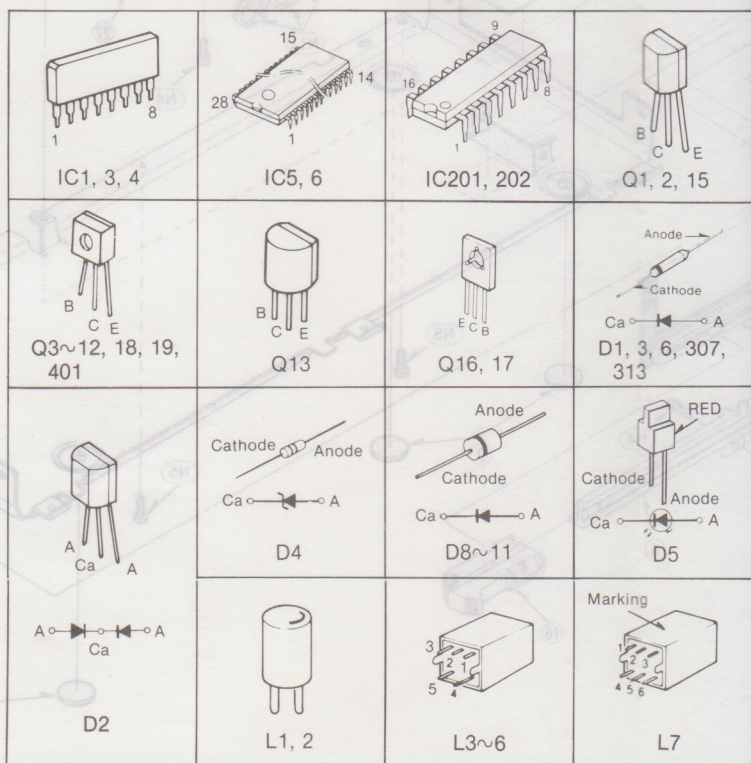
Important safety notice

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
RESISTORS		R 85	ERD25FJ100	C 9, 10	ECQM1H103JZ	INTEGRATED CIRCUITS
R 3, 4	ERD25FJ101	R 86, 87	ERD25FJ562	C 11, 12	ECEA1CU100	
R 5, 6	ERD25TJ473	R 88	ERD25FJ100	C 13, 14	ECKD1H681KB	
R 7, 8	ERD25FJ820	R 89	ERD25FJ471	C 31, 32	ECEA1HU010	
R 9, 10	ERD25TJ334	R 90	ERD25FJ271	C 37, 38	ECQM1H682JZ	
R 11, 12	ERD25FJ682	R 91	ERD25FJ390	C 39, 40	ECQM1H333JZ	
R 13, 14	ERD25FJ562	R 92	ERD25FJ562	C 41, 42	ECEA1HU010	TRANSISTORS
R 15, 16	ERD25TJ104	R 93	ERD25TJ333	C 43, 44	ECEA1UA471	
R 17, 18	ERD25FJ222	R 94, 95 Δ	ERD25FJ102	C 45	ECQP18B3JZ	
R 19, 20	ERD25TJ223	R 96 Δ	ERD2FCJ4R7	C 46	ECEA1CU101	
R 21	ERD25FJ103	R 97	ERD25FJ820	C 47	ECFDD153KXY	
		R 100	ERD25FJ182	C 48	ECFDD822KVY	
		R 101, 102	Δ ERDS1FJ100	C 50	ECEA1CU100	Q 1, 2 Q 3, 4 Q 5, 6, 7
R 22	ERD25FJ102	R 203, 204, 205, 206	ERD25FJ103	C 51, 52 Δ	ECEA1UA221	
R 25, 26	ERD25FJ102		ERD25FJ102	C 53, 54 Δ	ECEA1CU222	
R 43, 44, 45, 46	ERD25FJ222	R 209	ERD25FJ102	C 55, 56	ECKD1H223ZF	
		R 401, 402	ERD25FJ242	C 57, 58	ECKD2H121KB	
R 47, 48	ERD25FJ682	R 403, 404	ERD25FJ562	C 59, 60	ECQM1H102JZ	
R 49, 50	ERD25FJ272	R 405, 406	ERD25FJ332	C 63, 64 Δ	ECKD1H223ZF	DIODES
R 51, 52	ERD25FJ560	R 407, 408	ERD25FJ102	C 201, 202	ECFDD563KXY	
R 53, 54	ERD25FJ181	R 409, 410	ERD25TJ333	C 203, 204	ECEA1CU100	
R 55, 56	ERD25TJ223	R 411, 412	ERD25TJ823	C 205, 206	ECKD1H471KB	
R 57, 58	ERD25FJ822	R 413, 414	ERD25FJ821	C 301	ECEA1CU101	
R 59, 60	ERD25FJ8R2	R 415, 416	ERD25FJ512	C 302	ECKD1H103ZF	
		R 417, 418	ERD25TJ683	C 401, 402	ECOD1H820K	D 1 D 2 D 3 D 4 D 5 D 8, 9, 10 D 12 D 313
R 61, 62	ERD25TJ393	R 419, 420	ERD25FJ222	C 403, 404	ECQM1H472JZ	
R 63, 64, 65, 66	ERD25FJ472	R 421, 422	ERD25TJ823	C 405, 406	ECEA1CU100	
R 67, 68	ERD25FJ102	R 423, 424	ERD25FJ392	C 407, 408	ECQM1H473JZ	
R 69, 70	ERD25FJ121	R 425	ERD25FJ103	C 409, 410	ECQM1H224JZ	
R 71, 72	ERD25FJ153	R 426	ERD25TJ563	C 411, 412	ECEA502P88	
R 73	ERD25FJ103	R 427	ERD25TJ223	C 413, 414	ECQM1H103JZ	VARIABLE COMPONENTS
R 74	ERD25FJ472	R 428	ERD25FJ103	C 415, 416	ECQM1H472JZ	
R 75	ERD25TJ104	R 429	ERD25TJ223	C 417, 418	ECEA1CU100	
R 76, 77	ERD25FJ103			C 419, 420	ECQM1H473JZ	
R 78	ERD25TJ104			C 421, 422	ECQM1H224JZ	
R 79, 80	ERD25FJ103			C 423, 424	ECEA502P88	
R 81	ERD25FJ150			C 425, 426, 427, 428	ECEA1CU100	VR 1, 2 VR 3 VR 4 VR 5, 6 VR 7, 8 VR 9, 10
R 82	ERD25FJ392				ECEA1EU4R7	
R 83	ERD25FJ150				ECQM1H224JZ	
R 84	ERD25FJ1R0					
		C 1, 2	ECKD1H821KB			
		C 3, 4	ECEA1EU4R7			
		C 5, 6	ECEAOJU011			
		C 7, 8	ECCD1H181K			

TERMINATIONS



■ CIRCUIT BOARDS AND WIRING CONN

CAPACITORS

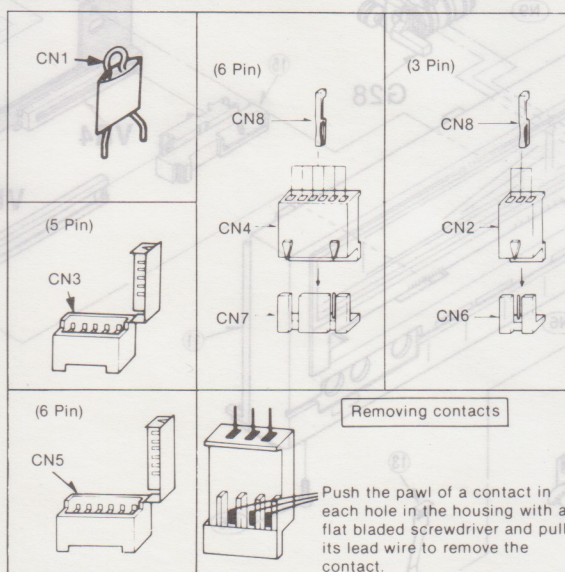
Carbon	ECBA	Ceramic
Metal-oxide	ECG	Ceramic
Metal-oxide	ECK	Ceramic
Metal-film	ECC	Ceramic
Metal-film	ECF	Ceramic
Fuse type metallic	ECQM	Polyester film
Solid		
Cement		

ECQE	Polyester film
ECQF	Polypropylene
ECED	Electrolytic
ECEDN	Non polar electrolytic
ECQS	Polystyrene
ECSD	Tantalum
QCS	Tantalum

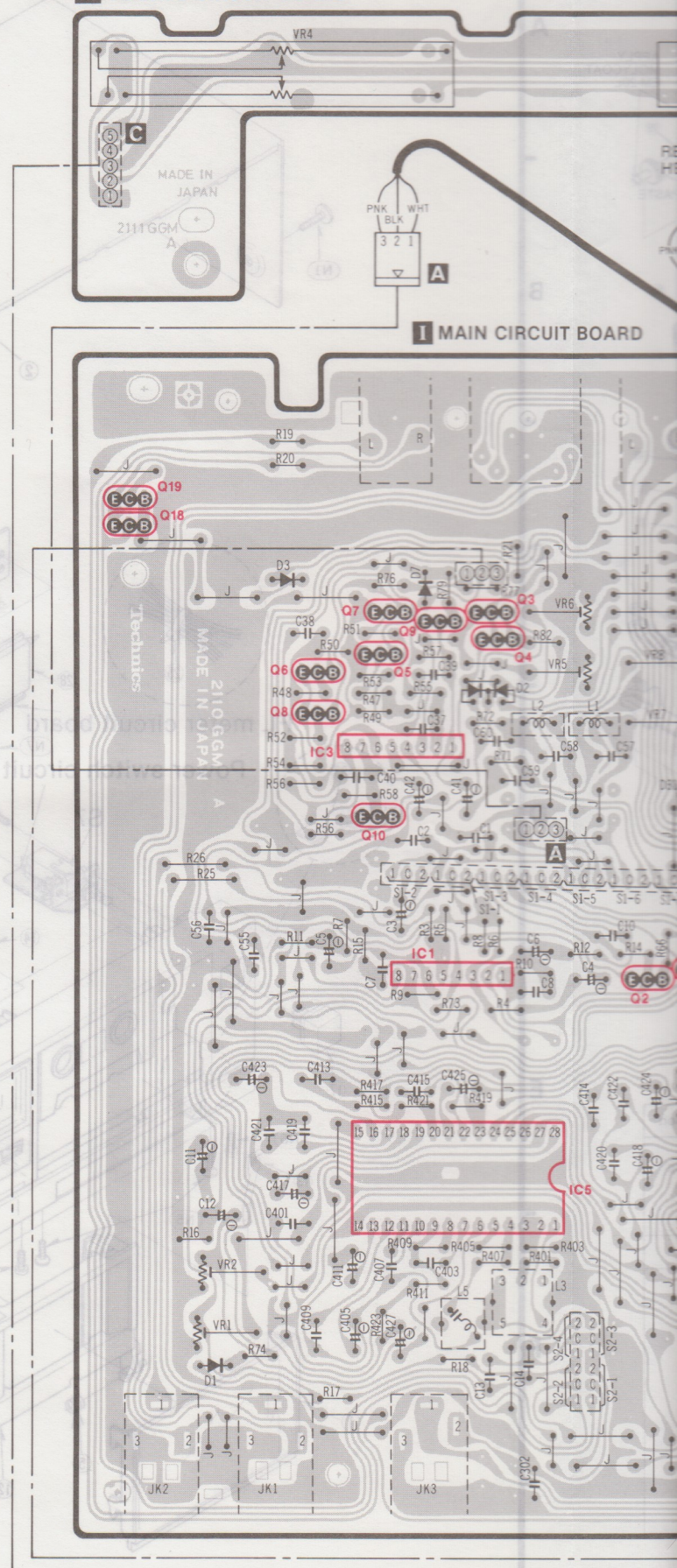
Part No.	Ref. No.	Part No.
INTEGRATED CIRCUITS		
ECQM1H103JZ	IC 1	M5219L
ECEA1CU100	IC 3, 4	M5218L
ECKD1H681KB	IC 5, 6	TEA0665
ECEA1H0U10	IC 201, 202	BA6146
ECQM1H682JZ		
ECQM1H332JZ		
ECEA1H0U10		
ECEA1AU471		
ECQP1183JZ		
ECEA1CU101		
ECFDD153KXY		
ECFDD822KVY		
ECEA1CU100		
ECEA1AU221		
ECEA1CU222		
ECKD1H223ZF		
TRANSISTORS		
Q 1, 2	2SA1115EF	
Q 3, 4	2SD1450R	
Q 5, 6, 7, 8, 9, 10, 11, 12	2SC3311Q	
Q 13	2SD592	
Q 15	2SA1115EF	
Q 16	2SC1846R	
Q 17	2SA885R	
Q 18, 19	2SC3311Q	
Q 401	2SC3311Q	
DIODES & RECTIFIERS		
D 1	1SS133	
D 2	MC921	
D 3	1SS133	
D 4	MA4180L	
D 5	LN216RP	
D 8, 9, 10, 11	SM112	
D 12	1SS133	
D 313	1SS133	
VARIABLE RESISTORS		
VR 1, 2	EVNM4AA00B24	
VR 3	EWANG5X05G15	
VR 4	EWAPB1X05A54	
VR 5, 6	EVNM4AA00B54	
VR 7, 8	EVNM4AA00B15	
VR 9, 10	EVNM4AA00B54	

Ref. No.	Part No.	Part Name & Description
COILS		
L 1, 2	QLQX0343KWA	Bias Trap Coil
L 3, 4	QLM9Z10K	MPX Filter
L 5, 6	ELM7Q306A	Skewing Network
L 7	QLB0198KA	Bias Oscillation Coil
COMBINATION PARTS		
Z 1, 2	EXRP220K124	
TRANSFORMER		
T 1	QLPP65EKC	AC Power Transformer
SWITCHES		
S 1	QSSA209AT	Slide Switch (Record/Playback Selector)
S 2, 3, 4, 5	QSWX604T	Push Switch
S 6	QSB0251IU	Leaf Switch (FF/CUE/REW/REV)
S 7	QSW4217T	Push Switch (Power ON/OFF)
S 8	QSWX604T	Push Switch
JACKS		
J 1, 2	QJA0454C	Microphone Jack
J 3	QJA0455C	Headphones Jack
CONNECTORS		
CN 1	QJT1090	Check Pin
CN 2	QJS1921TN	3 Pin Socket
CN 3	QJS1961S	Jumper Socket (5 Pin)
CN 4	QJS1922TN	6 Pin Socket
CN 5	QJS1993S	Jumper Socket (6 Pin)
CN 6	QJP1921TN	3 Pin Plug
CN 7	QJP1922TN	6 Pin Plug
CN 8	QJT1054	Contact

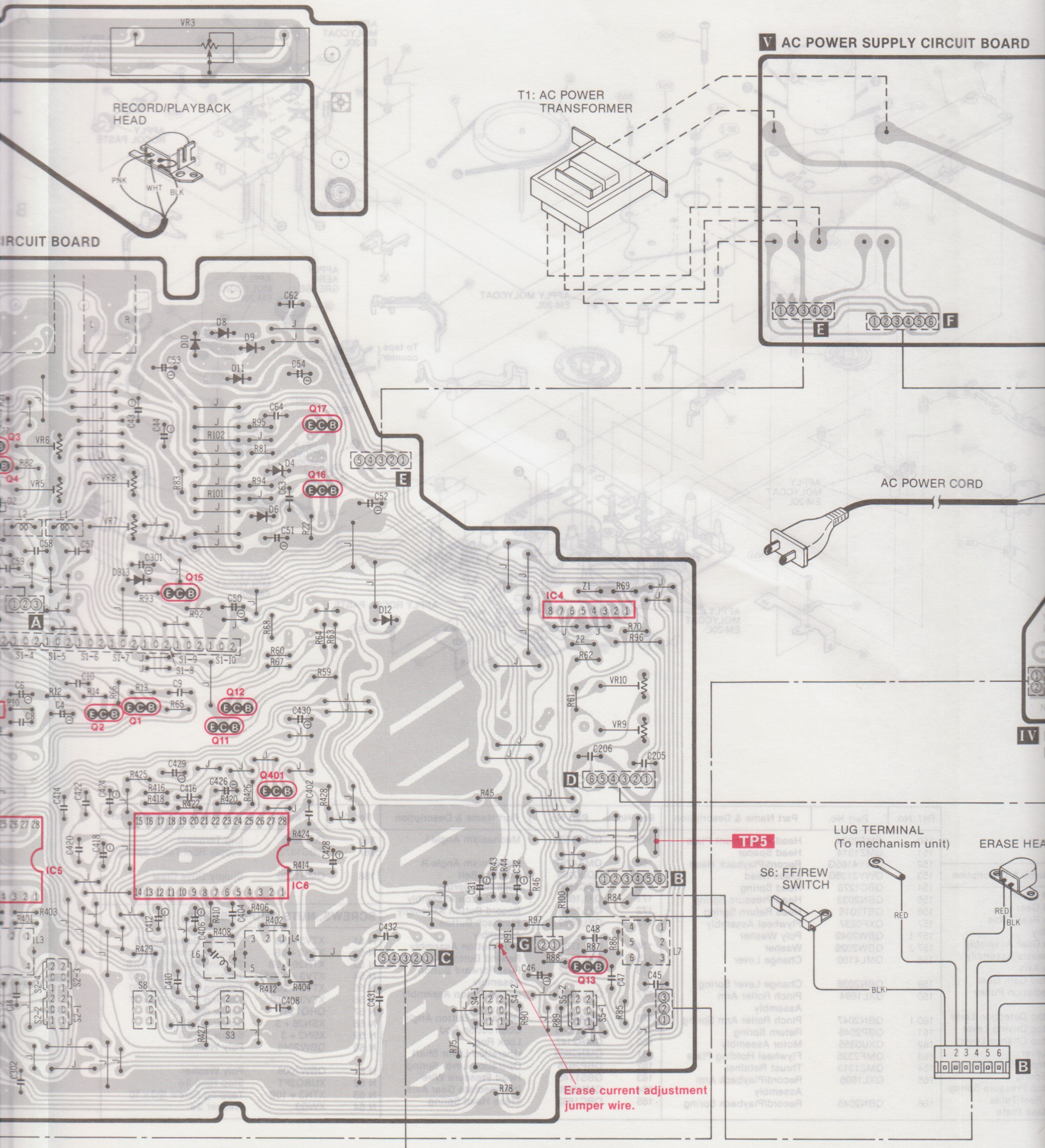
CONNECTORS



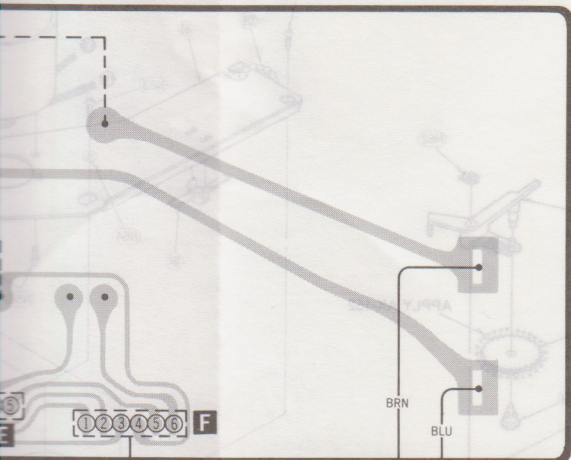
III VOLUME CIRCUIT BOARD



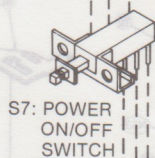
Wiring Connection Diagram



POWER SUPPLY CIRCUIT BOARD

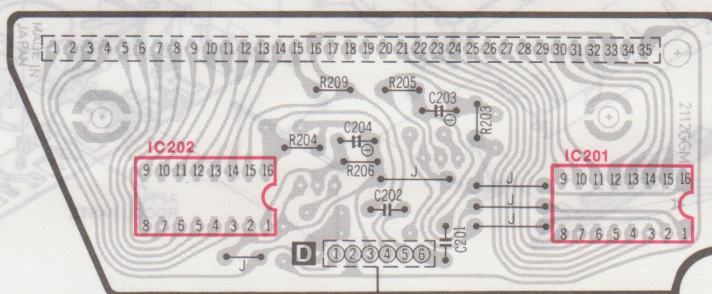


VI SWITCH CIRCUIT BOARD

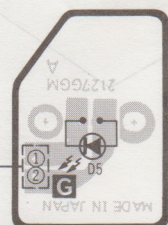


S7: POWER ON/OFF SWITCH

II FL METER CIRCUIT BOARD

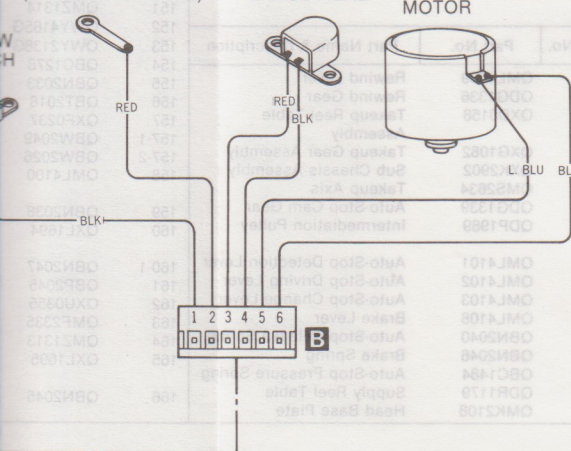


IV LED CIRCUIT BOARD

LUG TERMINAL
(To mechanism unit)

ERASE HEAD

MOTOR



NOTES:

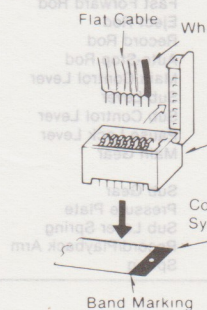
BLK.....Black	ORG.....Orange
BLU.....Blue	PNK.....Pink
BRN.....Brown	RED.....Red
GRY.....Gray	SLD.....Shield Wire
GRN.....Green	VLT.....Violet
L.BLU.....Light Blue	WHT.....White
NIL.....No Color Mark	YEL.....Yellow

NOTES:

- The circuit shown in [] on the conductor side indicates printed circuit on the back side of the printed circuit board.
- This circuit board diagram may be modified at any time with the development of new technology.

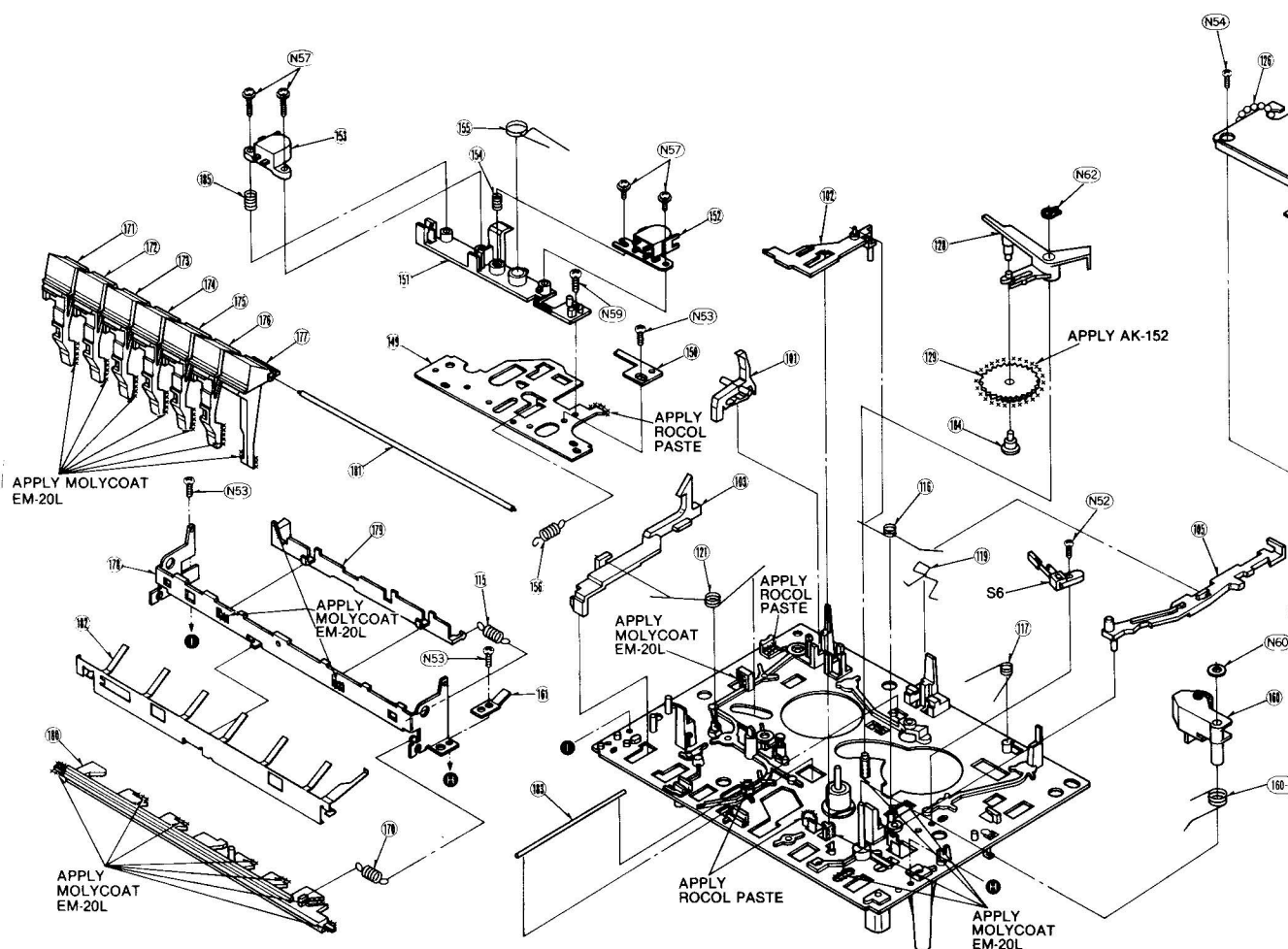
CONNECTION OF A FLAT CABLE

Connect the flat cable to the jumper socket so that the white line on the flat cable corresponds to the band mark side of the connection symbol (yellow or white symbol on the PC board) for the jumper socket. (This connection may differ from those for conventional models.)



MECHANICAL PARTS LOCATION

(Front View)



NOTE:

When changing mechanism parts, apply the specified grease and oil to the area marked "xx" shown in the drawing "Mechanical Parts Location".

- Molycoat: Lubricating oil
- Rocol paste: Lubricating oil
- AK-152: Lubricating oil

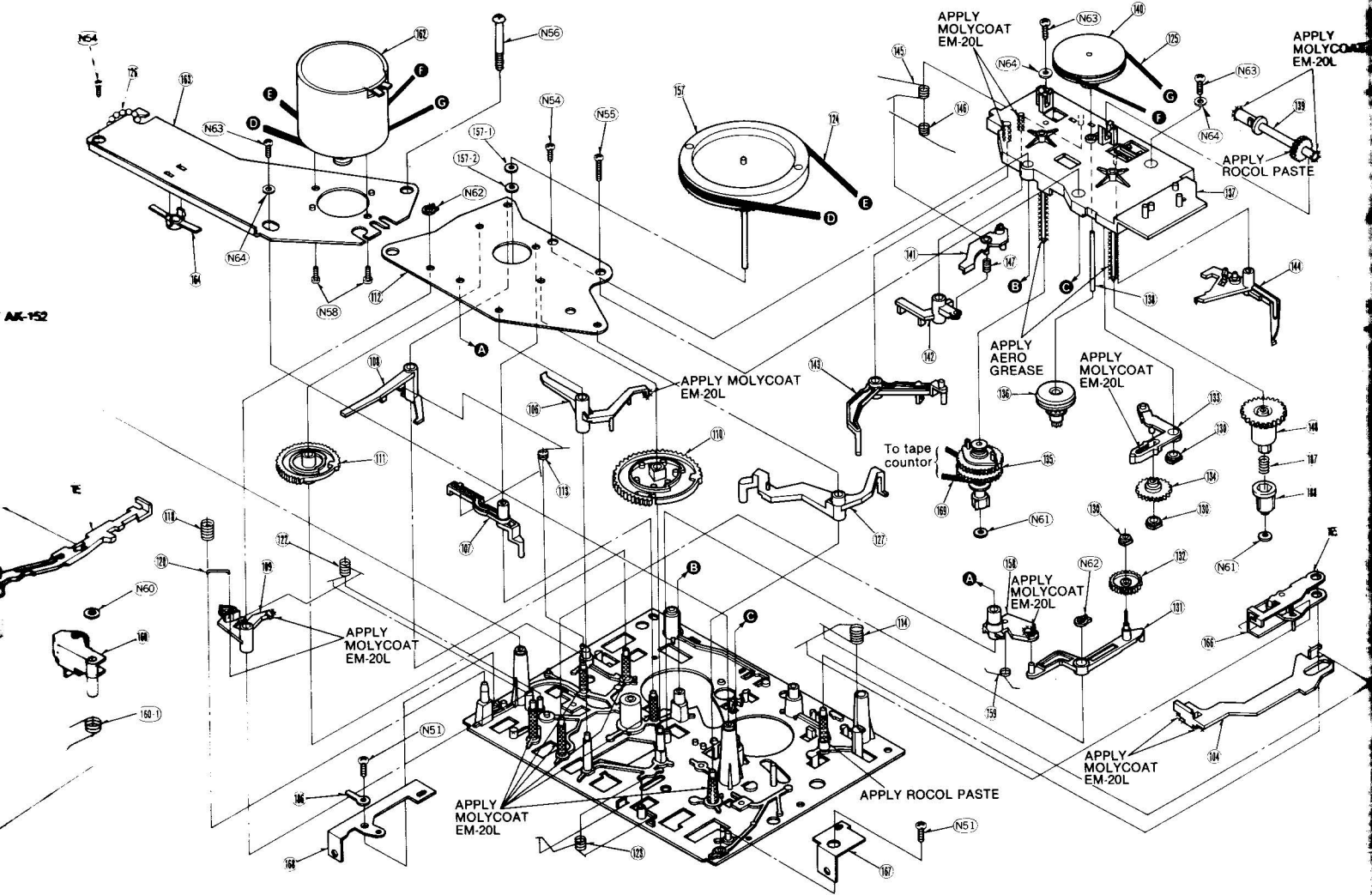
SPECIFICATIONS

Pressure of pressure roller	350±50g
Takeup tension * Use cassette torque meter.....QZZSRKCT	45 + 15 - 10g-cm
Wow and flutter; (JIS) * Use test tapeQZZCWAT	Less than 0.07% (WRMS)

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS			115	QBT1868D	Obstruction Rod Spring	133	QML4099	Rewind Lever
101	QML4156	Erase Safety Lever	116	QBN2039	Auto-Stop Rod Spring	134	QDG1336	Rewind Gear
102	QMR2144	Fast Forward Rod	117	QBN2044	Auto-Stop Lever Spring	135	QXD0158	Takeup Reel Table Assembly
103	QMR2145	Eject Rod	118	QBC1483	Pause Pin Spring	136	QXG1082	Takeup Gear Assembly
104	QMR2146	Record Rod	119	QBS1143	Half Retain Spring	137	QXK2902	Sub Chassis Assembly
105	QMR2149	Auto-Stop Rod	120	QBS1128	Lock Pin	138	QMS2634	Takeup Axis
106	QML4093	Main Control Lever	121	QBN2031	Main Lever Spring	139	QDG1339	Auto-Stop Cam Gear
107	QML4094	Sub Lever	122	QBN2032	Pause Return Spring	140	QDP1989	Intermediation Pulley
108	QML4095	Sub Control Lever	123	QBN2034	Main Control Lever Spring	141	QML4101	Auto-Stop Detection Lev
109	QML4096	Pause Lock Lever	124	QDB0360	Capstan Belt	142	QML4102	Auto-Stop Driving Lever
110	QDG1330	Main Gear	125	QDB0359	Fast Forward Belt	143	QML4103	Auto-Stop Change Lever
111	QDG1331	Sub Gear	126	QTD1181	Wire Clamper	144	QML4108	Brake Lever
112	QMF2333	Pressure Plate	127	QXL1689	Main Lever Assembly	145	QBN2040	Auto-Stop Release Sprin
113	QBN2035	Sub Lever Spring	128	QML4097	Takeup Lever	146	QBN2046	Brake Spring
114	QBN2036	Record/Playback Arm Spring	129	QDG1333	Takeup Intermediate Gear	147	QBC1484	Auto-Stop Pressure Spr
			130	QMB1434	Cap	148	QDR1179	Supply Reel Table
			131	QML4098	Fast Forward Lever	149	QMK2108	Head Base Plate
			132	QDG1335	Fast Forward Gear			

(Rear View)



Part Name & Description

Reel Lever

Reel Gear

Takeup Reel Table

Assembly

Takeup Gear Assembly

Sub Chassis Assembly

Takeup Axis

Auto-Stop Cam Gear

Intermediation Pulley

Auto-Stop Detection Lever

Auto-Stop Driving Lever

Auto-Stop Change Lever

Brake Lever

Auto-Stop Release Spring

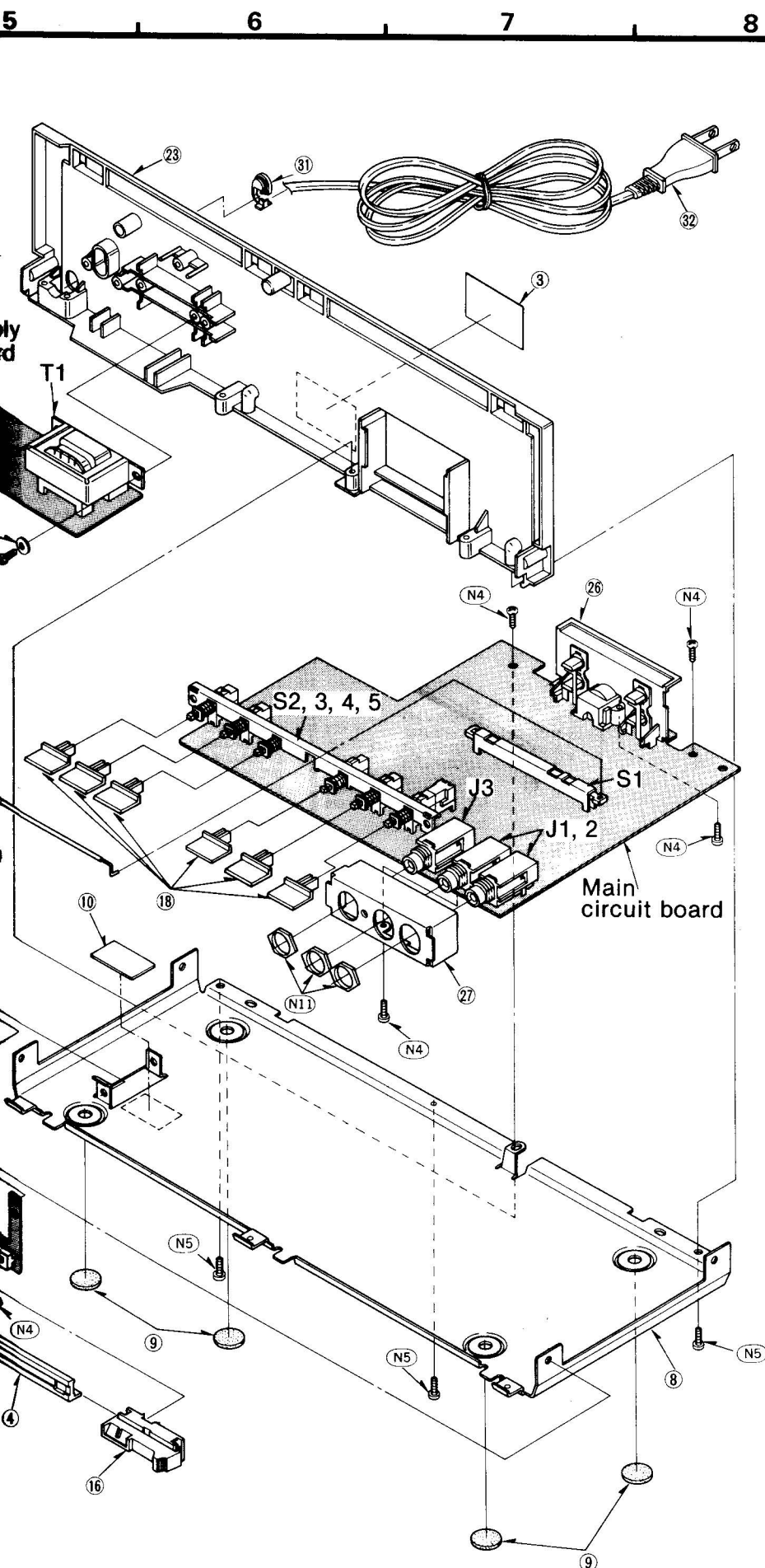
Brake Spring

Auto-Stop Pressure Spring

Supply Reel Table

Head Base Plate

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
150	QMF2334	Head Adjustment Plate	167	QMA4766	Mechanism Angle-L	186	QJT0015	Lug Terminal
151	QMZ1314	Head Spacer	168	QMA4767	Mechanism Angle-R	187	QBC1372	Supply Reel Table Spring
152	QWY4165G	Record/Playback Head	169	QDB0169	Counter Belt	188	QMB1336	Supply Drive Claw
153	QWY2138G	Erase Head	170	QBC1500	Lock Rod Spring	SCREWS, NUTS AND WASHERS		
154	QBC1278	Head Spring	171	QXL1697	Eject Button Assembly			
155	QBN2033	Head Pressure Spring	172	QXL1698	Record Button Assembly			
156	QBT2018	Head Return Spring	173	QXL1699	Playback Button Assembly			
157	QXF0237	Flywheel Assembly	174	QXL1700	Stop Button Assembly			
157-1	QBW2049	Poly Washer	175	QXL1701	Rewind Button Assembly			
157-2	QBW2026	Washer	176	QXL1702	Fast Forward Button Assembly			
158	QML4100	Change Lever	177	QXL1703	Pause Button Assembly			
159	QBN2038	Change Lever Spring	178	QMA4753	Operation Button Angle	N 51	XTV3 + 6B	Tapping Screw $\varnothing 3 \times 6$
160	QXL1694	Pinch Roller Arm Assembly	179	QMR2148	Obstruction Rod	N 52	XTN2 + 6B	Tapping Screw $\varnothing 2 \times 6$
160-1	QBN2047	Pinch Roller Arm Spring	180	QMR2147	Lock Rod	N 53	XTN26 + 6B	Tapping Screw $\varnothing 2.6 \times 6$
161	QBP2045	Return Spring	181	QMN2869	Operation Lever Shaft	N 54	XTV3 + 10BFN	Tapping Screw $\varnothing 3 \times 10$
162	QXU0355	Motor Assembly	182	QBP2018	Operation Lever Spring	N 55	XTV3 + 20BFN	Tapping Screw $\varnothing 3 \times 20$
163	QMF2335	Flywheel Holding Plate	183	QBS1145	Head Pressure Wire	N 56	XTV3 + 37B	Tapping Screw $\varnothing 3 \times 37$
164	QMZ1313	Thrust Retainer	184	QMN2883	Intermediate Gear Axis	N 57	QHQ1361	Screw $\varnothing 2.6 \times 12$
165	QXL1695	Record/Playback Arm Assembly	185	QBC1502	Erase Head Spring	N 58	XSN26 + 3	Screw $\varnothing 2.6 \times 3$
166	QBN2045	Record/Playback Spring				N 59	XSN2 + 3	Screw $\varnothing 2 \times 3$
						N 60	QBW2046	Poly Washer
						N 61	QBW2008	Poly Washer
						N 62	XUBQ3FT	Stop Ring 3 ϕ
						N 63	XTN3 + 10B	Tapping Screw $\varnothing 3 \times 10$
						N 64	XWG3	Washer 3 ϕ



REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
CABINET PARTS AND CHASSIS PARTS		
1	QYF0723	Cassette Lid Assembly
2	QGC1251	Case Cover
3	[P] QGS3188	Main Name Plate
3	[C] QGS3190	Main Name Plate
4	QGG0230H	Slide Guide
5	QBN2076	Holder Spring
6	QDC0177	Tape Counter
7	QMA4800	Holder Angle (for Tape Counter)
8	QGC1250	Bottom Cover
9	QKA1094	Case Foot
10	QBM1342	Cushion
11	QYP1273	Front Panel Assembly
12	QMH2112	Cassette Holder
13	QBP2006	Tape Pressure Spring
14	QYF0627	Damper Assembly
15	QYT0677	Volume Knob Assembly-A
16	QYT0678	Volume Knob Assembly-B
17	QGO2399	Power Button
18	QGO2397	Push Button
19	QML4123	Record/Playback Changing Lever
20	QBS1146	Record/Playback Changing Wire
21	QMA4802	Record/Playback Changing Angle
23	QMK2127	Back Chassis
25	QTD1315	Cord Clamp
26	QEJ5039C	Pin Jack (without DIN)
27	QMA4779	Microphone Angle
28	QSIFL014F	FL Meter
29	QKJ0730	Meter Holder
30	Δ SJT777	Pin Terminal
31	QTD1129	Cord Bushing
32	Δ RJA9YAK	AC Power Cord
33	QJC0073	Earth Plate
SCREWS, NUTS AND WASHERS		
N 1	QHQ1349	Ornament Screw
N 2	XTB3 + 10BFN	Tapping Screw $\phi 3 \times 10$
N 3	XTN3 + 10BFN	Tapping Screw $\phi 3 \times 10$
N 5	XTS3 + 10BFN	Screw $\phi 3 \times 10$
N 6	XTB3 + 8BFN	Tapping Screw $\phi 3 \times 8$
N 7	XTV3 + 12BFN	Tapping Screw $\phi 3 \times 12$
N 8	XTN3 + 10B	Tapping Screw $\phi 3 \times 10$
N 9	XTS3 + 6BFN	Tapping Screw $\phi 3 \times 6$
N 10	XWG3	Washer 3 ϕ
N 11	QNG1070	Nut 12 ϕ
ACCESSORIES		
A 1	[P] QQT3635	Instruction Book
A 1	[C] QQT3636	Instruction Book
A 2	QEB0125	Connection Cord
PACKINGS		
P 1	[P] QPN4718	Inside Carton
P 1	[C] QPN4739	Inside Carton
P 2	QPA0763	Cushion-A
P 3	QPA0764	Cushion-B
P 4	QPS0710	Pad
P 5	XZB40X60A02	Poly Bag
P 6	QPC0072	Poly Sheet

Areas

*[P] For U.S.A.
*[C] For Canada.



Printed in Japan
84053350 (H) M.S/Y.M

Service Manual

Dolby B • C NR-Equipped
Stereo Cassette DeckCassette Deck
RS-B14

Color

(K)...Black Type

Color	Area
(S)	[P].....U.S.A.

RS-B10 MECHANISM SERIES

- Please use this manual together with the service manual for model No. RS-B14 ([P] mark areas; "Silver Type") order No. HAD84052768C1.
- This Service Manual indicates the main differences between; original RS-B14 ([P] mark areas; "Silver Type") and RS-B14 ([P] mark areas; "Black Type").

PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual RS-B14 ([P] mark areas; "Silver Type") to conform to the changes shown herein.

If new part numbers are shown, be sure to use them when ordering parts.

Ref. No.	Part Name & Description	Part Numbers		Remarks
		"Silver Type"	"Black Type"	
1	Cassette Lid Assembly	QYF0723	QYF0723K	
2	Case Cover	QGC1251	QGC1251K	
4	Slide Guide	QGG0230H	QGG0230K	
11	Front Panel Assembly	QYP1273	QYP1273K	
15	Volume Knob Assembly-A	QYT0677	QYT0672	
16	Volume Knob Assembly-B	QYT0678	QYT0673	
N1	Ornament Screw	QHQ1349	QHQ1349K	
N2	Tapping Screw $\varnothing 3 \times 10$	XTB3 + 10BFN	XTB3 + 10BFZ	

Design and specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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